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SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

Volume VIII SATURDAY, AUGUST 31, 1918 Number 192

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$3.00 A YEAR PUBLISHED WEEKLY 10 CENTS A COPY

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

NEW YORK CITY: SUB-STATION 84

Entered as second-class matter January 2, 1915, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879

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SCHOOL AND SOCIETY

Volume VIII SATURDAY, AUGUST 31, 1918 Number 192

EDUCATION AND OUR DEMOCRACY[1]

THE program of the afternoon does not constitute in any sense a formal report of the work and activities of your Commission on Emergency and Readjustment. It is rather an informal discussion of some of the problems that the commission has considered and more particularly of some of the principles that have so far guided the members of the commission in their deliberations.

It has been the conviction shared I think by all of members of the commission that the present crisis has brought to those responsible for public education both unprecedented responsibilities and unprecedented opportunities. Two great facts have stood out sharp and clear in all of our discussions: the first is the marvelous awakening of the national consciousness, the sweeping away of the old divisions between sections of the country and groups of the population, and the birth of new, fresh and vigorous sense of national unity. The second great fact is the rapid growth and development of a new and pervasive and comprehensive meaning for the word democracy.

The first of these great movements—the development of the new nationalism—has created almost overnight an educational need of which we have hitherto been only dimly conscious. It is the imperative need of educational efficiency upon a national scale, and the parallel need of programs and policies that are framed with the needs of the nation primarily in mind. We have become suddenly aware that it does make a difference whether all of the people of the country can think together and act together. We have become suddenly aware that educational backwardness and intellectual stagnation in any part of the country may handicap the progress and imperil the safety of the nation as a whole. With seven hundred thousand illiterate young men subject to the draft, the welfare of the schools in every locality and the adequacy of the education provided for every type of child have become matters of national concern. When we of the educational world are astounded to learn that there have been hundreds of communities in this country where boys and girls have grown to manhood and womanhood in utter ignorance of American ideals and institutions, ignorant of the very language of our country, and even nurtured upon alien ideals brought to them through the medium of an alien tongue, it is pretty clear that we have been thinking of education and planning for education too exclusively in the terms of our circumscribed local units. And when we find entire contingents of our National Army unable to understand commands given to them in the language of their country, unable in some cases to understand any language save that of our principal enemy, it is pretty clear that the doctrine of local autonomy in education needs some very radical modifications.

But it is not alone the revelations of the draft and the discovery of centers of active enemy propaganda in various sections of

[1] Read before the General and Society Session of the National Education Association, Pittsburgh, July 1, 1918, introducing the program of the N. E. A. Commission on Emergency and Readjustment.

the country that point to the imperative need of a national aim in education. Again almost over night, the position of our country with reference to other nations has been radically transformed. From a sequestered and in many ways self-sufficient people we have suddenly assumed a position of prime significance in a new family of nations. Whatever may have been the insufficiencies of our educational system under the older order, they concerned ourselves alone. If it pleased us to have an aggregation of state and local schools systems, varying widely in the elements that they contributed to the nation's strength, we could at least console ourselves with the knowledge that this was our way of doing things and need be of no concern to the rest of the world. Whether we will or no, that day of complacency has passed never to return. It will make a difference now, not only to ourselves but to the free peoples who have fought for us and with us, whether thirty or fifty or one hundred per cent. of our schools are efficient. Our people constitute the richest and strongest of the great democracies. In the coming federation of free nations they must bear a responsibility for the preservation and strengthening of the democratic ideal, a responsibility commensurate with their strength and their wealth. Upon the way in which our people think and feel and act from this time forth will depend conditions and issues that reach far beyond our own borders and comprehend vastly more than our own happiness and welfare and progress. When we were an isolated and self-sufficient people, we could temporize with the educational problem. We could lament the shameful neglect of our rural and village schools which enroll more than one half of the nation's children, and stop with lamentations. We could regret that we could not solve this great problem, which lies closer to the root and source of our national life than any other problem in the realm of education. The time for regrets and lamentations is past; the time for action has come.

And so it is with the other great educational needs which mean so much to the welfare of the nation. Of many of them we have been fully conscious—but we could temporize. We have temporized with the problem of preparing teachers until we have the unenviable reputation of giving less attention to the problem than any other great nation, and no problem is fraught with greater significance to the welfare of our schools, and to the responsibilities that they represent. We have temporized with the health problem and the problem of adult illiteracy. We have temporized with the problem of furnishing educational stimulus and direction to the great masses of our boys and girls who leave school and enter bread-winning employment before their habits have been formed and their ideals of life and conduct firmly established.

And it is only fair to say that we have temporized because we have had to temporize. Our system of school support has been such that we have had to depend almost entirely upon local revenues; our system of school administration has been such that we have had to depend almost entirely upon local initiative. As a result, our programs and policies have been framed to meet the local needs and fit the local purse. If a community wished to have good schools and could pay the price, it has usually had good schools. If a community has been indifferent to education, it has in general had the privilege of neglecting its schools. If a community has been poor but ambitious, it has done the best that it could with its slender resources. And because in general our thickly settled communities are rich and

our sparsely settled communities are poor, the most glaring inequities of education have prevailed.

But all this represents in reality an unnecessary situation. While it is true that there are marked inequalities among various sections of the country in respect to per capita wealth, it is also true that the country as a whole is very far from poor. We can have something akin to an equality of educational opportunity if the people only say the word. We can have a good school in every locality and mature, well prepared and permanently employed teachers in every school. If our people say the word we can within a decade solve the rural-school problem. We can put into our rural and village schools two hundred thousand teachers who will do for rural America and for the nation as a whole what the village dominies have done for Scotland, and what the rural schoolmasters have done for Denmark and Norway,—two hundred thousand teachers who will make these rural schools of ours, these lonely outposts of culture, what they should be,—strategic centers of national life and national idealism,—for outposts though they may be in one sense, in another and a deeper sense, these little schools of all of our educational institutions are closest to what is formative and virile and abiding in our national life.

And if the people only say the word, the next decade may easily see the great problem of adolescent education well on the road toward a satisfactory solution. If England in this most critical hour of her history can deliberately decide to advance the limit of compulsory continuation schooling to eighteen, if France, struggling so bravely to defend not only herself but the entire world against a ruthless aggression, can even in the midst of that struggle plan to keep her boys under educational direction until the age of twenty, shall we, living in comparative security and abundance, confess that we are unequal to the task? If these countries with whom we are now so proud to cooperate in war are so keenly sensitive to the grave responsibilities that their coming generations must assume, are we to be recreant to a cause that affects them perhaps as fundamentally as it affects us? I have heard it intimated that our country has already done so much and done it so gloriously that the results clearly establish the efficiency of our educational system and vindicate its present organization. We can all take a just pride in the record that our country has so far made, and this pride will grow with our future achievements and victories. But it will be, I trust, a kind of pride that is chastened by a due and worthy sense of humility. If any country to-day can point to its national record as proof of the superior efficiency of its schools, that country is France—and it is worthy of our attention that France has already considered developments that make anything so far projected in this country look mean and paltry.

I repeat that, if the people will only say the word, we can within a decade attain to a high measure of educational efficiency on a nation-wide scale. It is the judgment of your commission that we should urge the people to say that word, and say it quickly. After all, it means only an extension of a principle that they have long since firmly established as a basis for the free schools of a democracy,—the principle, namely, that it is just and equitable to tax the entire wealth of a community for the education of all of the community's children. It is only because we still retain in educational affairs the eighteenth century conception of the word "community,"—it is only because we think

of the community in neighborhood terms,—it is because of this that the present inequities have persisted. We have tried to extend the principle from the old-time neighborhood conception to include the state as the taxing unit, but largely because our state boundaries are generally quite artificial boundaries, this effort has met with only partial success. But during all of this time, the real unit has been looming larger and larger in the minds of the people. Commerce and industry have already been nationalized. Of all our collective enterprises education alone remains hampered and constrained by the narrow confines of an obsolete conception. But now with this new national awakening state boundaries even here can be easily and quickly transcended. The golden hour of American education has struck. The opportunity is here and the need is compelling to employ the resources of the nation for the education of the nation's children. We have a national problem to solve that transcends all state and local problems. We have international obligations to discharge which will call for the very highest level of enlightened intelligence in the body politic. We have to-day not only a national consciousness but also a national conscience that will not be insensitive to these obligations. And we have in the nation something that neither the states nor the local communities have developed in like measure—namely a system and policy of taxation which distributes the burden of collective enterprises in the most equitable fashion that the mind of man has yet been able to devise.

It is but natural that there are those among our people who will look askance at a change in our educational system which makes the national treasury an important source of school revenues. There are sincere and well-informed men and women in this audience who have grave fears that federal cooperation in the support of public schools will mean federal control and the domination of a hide-bound bureaucracy. I have even heard expressed a fear that national support for education will Prussianize our great democracy.

The members of this commission respect these doubts and fears. But they also believe not only every worthy feature of local school control may be perpetuated, but that local initiative may be healthfully stimulated and local interest in and responsibility for education greatly augmented by the kind of federal cooperation that they propose. Personally I do not share the fear that the nationalization of our schools will Prussianize our people. In the first place, I do not think that anything could Prussianize our people. Prussianism is only superficially a form of organization; fundamentally it is a disease,—a moral lesion which has cut away every sentiment of decency and humanity, which has eaten from the social mind the spiritual and moral values of life, which has glorified the material and left the brute supreme. Germany has not needed even a federal system of education to spread this disease among her people. Her unit of school control, like ours, is the state, and not the nation.

France has the most highly centralized and nationalized educational system in the world. Has the nationalization of her schools Prussianized France? England is nationalizing her schools to-day. Will England's new schools Prussianize the English people? We have nationalized our railroads and many of our industries. We have nationalized our army. Do we find in our national life to-day anything that smacks of the Hun?

It is the conviction of this commission that the nation may participate in the support of education without involving the dangers

of bureaucracy and autocratic control. It is further the conviction of the commission that these dangers, if they exist, may be the more readily avoided if the initiative in promoting this principle of national support is taken by the National Education Association. We may be very sure that this movement is coming. Some individual or organization is bound—some have already essayed—to take the leadership. This responsibility falls naturally to this association. Shall we accept the plain challenge, or shall we lie back and let some one else do the work. It is the belief of the commission that you will have but one answer to that question.

W. C. BAGLEY

COLUMBIA UNIVERSITY

KEEPING SCHOOL WITHOUT FIRE

IN the crucible of war all of our convictions and institutions are being tried and tested. Organized education can no more escape the challenge of this fire of human experience than organized industry or organized government. Dr. George E. Vincent a few years ago in writing of educational problems asked this impelling question—"Will Americans have the intelligence of character to train, discipline, organize, unify themselves, or must they undergo an ordeal imposed from without?" An irrevocable answer has been given, the ordeal has come and our educational theories and systems must now undergo the test of these revealing hours. Not only in the large and obviously important phases of education must the changing forces of civilization be reckoned with, but the smaller situations, that arise through exigencies of war, may offer as challenging a test, and reveal vital and significant facts regarding our educational problems.

In the recent numbers of *The Atlantic Monthly* the public has been stirred by the heroic response of the schools of Rheims to the challenge of war, and in the first article "Keeping School under Fire" the author expresses the fundamental soundness of his convictions in these words:

> Was I well- or ill-advised to open schools in a city which was almost daily castigated by shells? At the outset the experiment was judged diversely. I reopened certain schools at Rheims because, the city not having been evacuated, there were still many children there. I considered that so long as there were pupils, even no more than a hundred, there ought to be schools, not only to enable them to continue their studies, but to protect them against the dangers of the street.

No such test has come to American school systems as these schools and valiant schoolmasters of France have had to face under fire, and yet when the first indirect effect of war was felt by our public schools in several communities, through the fuel situation of the past winter, what did we do about keeping school without fire? When public-school buildings were closed in cities and towns varying in population from 75,000 to 500,000 for a period of six, eight or ten weeks on account of the shortage of coal, children numbering anywhere from thirty thousand to twelve or ten thousand were suddenly released from school supervision. At the same time a corps of teachers was dismissed from regular school duties, though in many instances still drawing their salaries and nominally responsible to the school organization.

Abraham Flexner has said in one of his studies of parents and schools:

> Parents are going into the thing (education) for themselves—the right and duty of asking to be shown, of asking persistently and continuously "why," "why," gives parents all the leverage they need, or can use, in making over the education of their children.

When the education of our children was thus peremptorily wiped out, was it not indeed a situation giving the parents, if

ever, their inalienable "right and duty" to be "shown," of asking their persistent "why"? Why, when school buildings must be closed, need education cease? Why, when thousands of children are turned back into our city homes, with the necessarily limited opportunities for right activity that tenements and city dwellings afford, and a staff of several hundred teachers is under pay—why, we ask, are not these forces brought together? Why, because we must accept the inevitable fact of no fuel, need we decide there is no way of keeping school without fire?

To the first question the answer may be justly made that education did not cease, since in many communities high schools and eighth grades were continued, and that since these grades were approaching or already arrived at wage-earning age, they were the most important of our city children to hold in the school organization. But while this statement is appreciated and such an effort highly endorsed, why then were girls' trade schools in many instances disbanded? The loss in the number of girls in trade schools can be told distressfully by any teacher in these institutions, now that the coal shortage is past and the buildings again open to the girls. Were there no other available ways of maintaining this trade training? Were there no Red Cross rooms, War Relief centers, where these girls could have pursued their sewing under direction of their teachers, and combined their trade training with direct service to the needs of the suffering world? Were there no lunch rooms in high-school buildings that were open, where training in cooking could have been continued and valuable practical experience been added to the science of the course? No liberty-bread shops, community food centers, where the girls could have been employed to the advantage of the people as well as themselves?

The question then goes further, pursuing the rest of the thousands out of school. This great group of children was separated from definite occupations and from the guardianship of a trained corps of teachers, who in many instances in the pay of the school authorities were devoting some time to Red Cross work, Exemption Board statistics or other allied war work. Was such a separation of child and teacher inevitable? The one turned without direction into the life of the community, while the other served the country in what is considered direct war work. Was this making the world either safe or intelligent for democracy? Was there no way to keep school without fire?

In many towns and cities where school buildings were necessarily closed there existed opportunities in varying degrees of public resources. There stood in our very midst museums, libraries, historic buildings, as well as factories and shops, all with great facilities for teaching our children, by positive experience and observation, the facts they must usually glean from textbooks and school recitations. The majority of these buildings were kept open certain hours of the day during the fuel shortage, and why were not these great public institutions and private industries used to the utmost of their resources, and capacity, for the education of our children? Some such opportunities were grasped maybe in a limited way by teachers and children, but not many, and none in a thoroughly organized manner.

Why was not a plan of education devised and quickly put into operation, which would have cared for all the school children in their grades, under the leadership of their respective teachers, to study in natural history museums, to share story hours

in public libraries, to find vivid illustrations in art museums of their school lessons in Greek and Roman history? The plan would include trips where possible to the historic points of interest in their communities, where they could actually visualize the meaning of some of our past struggles for freedom and democracy, and where they could learn in dramatic form, why this new period of struggle and tragedy was of American, as well as European significance. History lessons of the past used to interpret history in the making. Visits to factories and shops to see what machinery was doing, and how the skill and industry of man has created our age of industrial development, and what the relation a child in school bears to a future life work in "the Great Society." Our children would thus see and feel products in process of manufacture that they were struggling to learn in classroom came from some place, to be made into something, somewhere, somehow. Professor Dewey has said:

> It is the rare mind that can get relations or draw conclusions from simply hearing facts. Most people must see and handle things before they can tell how things will behave and what their meaning is. The teacher then becomes the one who sees that the pupils get proper material and that they use it in ways that are true—that is in ways that represent relations and conditions that actually exist outside the classroom.

Here was a chance to try experiments in the larger education, the psychologists and educators of the day are urging upon our consideration. Whenever such suggestions, or "innovations" as they are called, are made under normal school conditions to the school authorities, the answer is always "there is not time under school pressure for these outside pursuits; our teachers have all they can do to cover with their pupils the prescribed curriculum of the grades." Very well, but here was an inevitable break in that school curriculum, here was an opportunity for trying another type of education, of offering for a little space of unoccupied time a new revelation to our school children, a new insight into educational leadership to our teachers. It was no longer a question of interference with school work, of dangerous innovations into the traditional and fearfully revered school methods—these vanished when coal disappeared—it was simply a moment when the decision had to be made, whether our children and our teachers should have no relation to each other, or to education, whether there was no other way to maintain, even under pressure of war, so great an undertaking of democracy as the education of all the children of all the people.

The objection may be made that such a plan of using the great educational resources of our cities would involve too difficult an adjustment of teachers to their groups, too complicated an arrangement of museum and library hours, historic and industrial trips, to make successful the practical operation.[1] Is not war the great and complicated ordeal which forces upon all our institutions the choice of quick, flexible adjustments, or failure in their allotted service to mankind? There were some weeks this winter, when some citizens may have wondered if the public schools of our country lacked imagination, insight, educational vision and determination necessary to meet the emergencies war forced upon the communities. Have some of the fears and prophecies of the wise educators of our time, in regard to the traditional school curriculum, been realized in these

[1] One city has already published the fact that the school committee had saved $10,000 during the coal shortage. Could not some of this money have been used in carfares and necessary expenses involved in such a plan?

weeks of closed schools? Did our school organizations unconsciously reveal their faith in text-book knowledge only, their contempt for outside educational opportunities? Have they justified Professor Dewey's statement that "the ordinary school curriculum ignores the scientific democratic society of to-day and its needs and ideals, and goes on fitting children for an individualistic struggle for existence softened by a little intellectual "culture" for the individual's "enjoyment"?

But the challenge to education during this war involves parents no less than school organizations; they must use their "why" with all thoughtful consideration, but without delay. When there was no coal for our public-school buildings, why was there coal for theaters, moving-picture houses, saloons, clubs? When the coal was taken from the schools to be distributed to the suffering in their homes, why then were the large private schools exempt from this request? We seem really to be living in days now when "none can have cake until all have bread," and yet while the great majority of our cities' children were excluded from their right to an education, how could some parents have felt justified in their children being exclusively and gently taught? One even heard some parents in our "democracy" reason thus, when questioned as to the continuance of private schools, "why we *pay* for our children's education!" Is it possible that there still exists a belief that education is one of the "possessive goods"? Bertrand Russell has said:

> There are two kinds of impulses corresponding to the two kinds of goods. There are possessive impulses which aim at acquiring or retaining private goods that can not be shared; these center in the impulse of property. And there are creative or constructive impulses which aim at bringing into the world, or making available for use, the kind of goods in which there is no privacy and no possession.

For which kind of goods are we fighting this world war, and to which kind does education belong? At this moment our great public schools should seem to the parents of America the visible testimonial to their faith in democracy. Are we always ready to fight for this word, this intangible ideal of human relationships, and yet never ready to live it in some of the already-won spiritual realities? Agnes Replier, who wrote satirically about public-school fellowship, now writes thus nobly in her article on the relation of the child to this war:

> To withhold from a child some knowledge apportioned to his understanding of the world's sorrows and wrongs, is to cheat him of his kinship with humanity. The little American like the little Armenian and the little Serb is a son of the sorrowing earth.

But how many parents believe their children can share the experiences and hazards of this war with the little Armenian, Greek or Serb, without sharing the opportunities and the imperfections of their own democratic institutions in their own American life? Unless we accept these common opportunities for our children, are we not withholding from them in a very real way their kinship with humanity, and so depriving them of some of their spiritual privileges, their birthright to the future democracy of the world?

Professor Dewey voices the challenge to both parents and school systems of America in these words:

> It is fatal for a democracy to permit the foundation of fixed classes. Differences of wealth, the existence of large masses of unskilled laborers, contempt for work with the hands, inability to secure the training which enables one to forge ahead in life, all operate to produce classes and to widen the gulf between them. Statesmen and legislation can do something to combat these evil forces—wise philanthropy can do something. But the only

fundamental agency for good is the public-school system.

Whether and how we Americans meet such a challenge will determine what some of the enduring effects of this great ordeal will be upon our institutions and our ideals.

ISABEL KIMBALL WHITING

CAMBRIDGE, MASS.

EDUCATIONAL EVENTS

NATIONAL RURAL TEACHERS' READING CIRCLE

THE National Rural Teachers' Reading Circle was organized in 1915 by the Bureau of Education in cooperation with an advisory committee of state superintendents of public instruction. The purpose is to be of direct assistance to the thousands of progressive, serious-minded rural teachers of the country who desire guidance in their study to improve themselves professionally. Never before in the history of our country was there so great a demand for well prepared rural teachers and supervisors as at the present time. It was to assist in finding and equipping these educators that the Bureau of Education organized the reading circle work three years ago.

The American farmers are doing their great share in winning the war through increased production from the land. After the war is won the rural population must take an equally vital part in the economic reconstruction that is sure to follow the war. This calls for a new type of leadership, cultured and educated in practical phases of modern scientific agriculture. The most important and indispensable agent in the attainment of this task will be the rural teacher. Without the well educated, broad-minded, sympathetic teacher any system of education can only be a lifeless mechanism.

Therefore the public must look to the country teacher and their preparation and see to it that they shall be men and women of the best native ability, the most thorough education and the highest degree of professional knowledge and skill. Since the time of organization a large number of progressive rural teachers of the country have become members of the reading circle. No attempt has been made to draw to the circle large numbers; the aim has been rather to list a few leaders from each county in the several states. Results have been very satisfactory. Of the number matriculated a large percentage have completed the work and have received the commissioner's certificate.

The reading circle for 1918–20, which is hereby announced, will be without cost to the members except for the necessary books, which may be procured from the publishers at regular retail rates, or through local libraries, or in other ways. There is no restriction as to membership, although it is highly desirable that applicants have a liberal acquaintance with the best literary works, past and present.

The books for this period reflect largely the conditions in education due to the unprecedented changes going on in the world to-day. They are classified under five heads, namely: Nonprofessional books of cultural value, educational classics, general principles and methods of education, rural education, and rural life problems.

The work is intended as a two-year course, although it may be completed by the industrious teacher in a shorter time. A national rural teachers' reading circle certificate, signed by the United States Commissioner of Education will be awarded to each teacher who gives satisfactory evidence of having read intelligently not less than five books from each general culture list and three books from each of the other four lists—seventeen books in all—within two years from the time of registering.

Teachers interested in the 1918–20 reading circle work should write for circulars, registration blanks, etc., to the Rural School Division, Bureau of Education, Department of the Interior, Washington, D. C.

UNIVERSITY EXTENSION IN MASSACHUSETTS

STEADY development of its facilities, adjustment to the needs of the times, progress in extending its scope of service and more opportunities and benefits for students are shown

in the annual report, just made public, of the Department of University Extension of the State Board of Education. The report is issued by James A. Moyer, director of the department.

So great is the demand upon its facilities that the department, although a State institution, is obliged to keep a waiting list somewhat after the fashion of an exclusive private school. The report suggests, therefore, that the Governor and Council be authorized to supplement the legislative appropriation for the department with funds sufficient to afford instruction to all who apply after the regular appropriation has been provided.

The report shows a steadily increasing realization by that part of the general public which is most concerned of the many benefits easily obtained from the department. The latter offers instruction by correspondence, or by class or group through personal instruction, in a wide variety of subjects concerning both business life and the home.

From January 19, 1916, when the first student was enrolled, to November 30, 1917, there were 7,105 pupils enrolled. There were 2,865 men and 1,009 women, or a total of 3,874, enrolled in correspondence courses—the department is often termed the "state's correspondence school"—1,662 men and 1,482 women, or a total of 3,144 enrolled in classes, and 73 men and 14 women, or a total of 87 enrolled in groups. The average age of the correspondence students was 26.31; of the class students, 29.7, and of the group students, 26.

Enrollments in classes in spoken French for soldiers, sailors, doctors and nurses expecting to serve in France totalled 2,079, of whom 1,155 were men and 924 women. Classes were established at Ayer, Commonwealth Pier, and other concentration points in the state. A class of 43 yeowomen was enrolled at the Charlestown Navy Yard.

The number of students who finished their courses since the establishment of the department and received certificates was 1,103. Of these 628 were men and 475 women. One hundred and fourteen men and 475 women finished courses without certificates, bringing the grand total up to 1,336. A total of 247 reenrolled, of whom 188 were men and 59 were women. Except for the cost of text-books and materials, the instruction is free, provided by the state.

THE STUDENT ARMY TRAINING CORPS[1]

By order of the Secretary of War, General Peyton C. March, chief of staff, has approved a plan for the organization of a student army training corps in the educational institutions of the country to train men as officers and technical experts in the army. The plan for the student army training corps, as altered to conform to the plans of the War Department for lowering the draft age, will utilize the plant, equipment and organization of the colleges to maintain a reservoir of officer material for training, from which it will be possible to meet the enlarged needs of the various branches of the service.

The length of time during which men will be trained in the colleges will depend upon the needs of the service. As fast as one group of trained men is drawn from the colleges into the service, their places will be taken by a new quota obtained by voluntary induction or through the draft. In this way the educational facilities of the country will be used to maintain a constant supply of men who are trained to meet the needs of the army.

Under the regulations provided for the student army training corps, selected young men who are physically fit for military service, who are eighteen years of age or over, and who have had a grammar school education, may voluntarily be inducted into the army and enter upon a course of special training. Those who have had a grammar school education, but no more, will ordinarily enter special training detachments to be trained along mechanical lines of military value. These detachments will become a part of the student army training corps, and young men who prove in the course of their mechanical training that they are officer material may be transferred to a unit in one of the colleges to be prepared to enter a central officers' training camp.

[1] Statement authorized by the War Department.

Young men who have had at least a high-school education will be allowed to enter the colleges for more advanced training as officers and as technical experts of various kinds, according to their experience and abilities. Those men who show promise under this training will be kept in college until qualified to enter central officers' training camps or to go directly into the service as technical experts. Those who do not will be sent either to non-commissioned officers' schools or to the nearest depot brigade, or in case they show special technical or mechanical ability, to the detachments where men are trained for such work.

Arrangements will be made for transferring from the depot brigades to units of the student army training corps men whose ratings in the cantonments indicate them to be officer material, but not yet ready to enter central officers' training camps. Every effort will be made to give every young man who enters the service under this plan opportunity for the training best suited to his natural ability and preferences, in order to enable him to serve the country in the most efficient way.

RALPH BARTON PERRY,
Executive Secretary, Committee on Education and Special Training

TRAINING IN SCIENTIFIC AND TECHNICAL SUBJECTS

IN the report of Secretary Lane's special committee on higher education and industry, which has been made public, emphasis is laid on the need for technically trained men and a specific program in higher education is urged.

The committee, which consisted of Fuller E. Callaway, a financier of La Grange, Ga.; Samuel M. Felton, director-general of military railways for the War Department, and President E. A. Alderman, of the University of Virginia, seeks to show how essential it is, if the government's far-reaching military plans are to be carried out successfully, that the processes of higher education be maintained at the highest possible efficiency—especially those having to do with the future supply of men and women trained in scientific and technical subjects, including teachers in these fields.

That it is impossible to exaggerate the importance of engineering knowledge and skill, in the broadest sense, is the judgment of Secretary Lane's committee, not only directly in the conduct of military operations, but indirectly in the essential war industries, including agriculture. The report says:

> The engineering problems confronting the United States are indefinitely greater than those of any other of the great nations. For an average distance of more than 4,500 miles, across the continents and the seas, we must transport all of the men, munitions and supplies which are to represent us in this great struggle. Furthermore, the central powers prepared themselves for this conflict over a long period of years, and by this means determined its character to their own advantage in large measure. The loss by our Allies of men of highly specialized training in the early stages of the war, and the difficulties in the way of recovery, leave this nation in the position of trustee of the only remaining sources of supply.

Pointing out how the War Department has already taken steps, through the establishment of the Student Army Training Corps, to utilize the higher educational institutions in training young men under twenty-one, Secretary Lane's committee makes the following recommendations:

> The people of the United States should recognize that the maintenance of the war strength of the nation in its full power demands the utmost efforts of all existing well-organized and adequately equipped colleges, universities and technical schools. This means ever increasing and more devoted bodies of students as well as faculties.
>
> Young people having the requisite qualifications should heed this urgent call of their country, and apply themselves diligently, enthusiastically, and in increasing numbers to the task of preparing for the highest service of which they are capable. Wherever practicable, young men should at the same time join the Students' Enlisted Reserve and prepare for military service, in order to be ready for that call also when it comes.
>
> Institutions of higher education should adjust their courses, so far as possible, to immediate war needs and to the demands which must inevitably come with the establishment of peace, and should develop especially those scientific and practicable branches of study which are essential to the winning of the war, to the development of our industries and commerce, and to the accomplishment of

the tasks of the civic and political life of the nation.

Educational institutions should use every effort to make the opportunities and privileges of training for public service accessible to all suitably prepared men and women of college age. In the cases of many worthy young men and women this will require some provision for assistance in meeting payments for tuition and laboratory fees and other necessary expenses of higher technical training.

THE WORK OF THE NATIONAL EDUCATION ASSOCIATION

SECRETARY J. W. CRABTREE has addressed the following letter to the active members of the National Education Association:

To active members of the National Education Association:

The *National Education Association Journal* for September will contain abstracts of addresses of general sessions at the Pittsburgh meeting. Active members are listed for the bound volume of proceedings except as they express a preference for the *Journal*. By remitting an additional dollar one may have both the bound volume and the *Journal*.

The *National Education Association Bulletin* for September will be sent to all members of the association. It will give information concerning: The Pittsburgh meeting; the results of the recent effort in the enlistment of the profession; the work of the National Education Association Commission; the plan for the drive for increasing National Education Association membership in 1918–1919 to the 100,000 mark; the organization and work of the State Commissions, and other points of information of interest and value to members.

The payment of annual dues should be made before November 1. Owing to the cost of carrying forward the work of the National Education Association Commission and of the Committee on Teachers' Salaries, the executive committee will appreciate an earlier payment of dues than during previous years. Use the enclosed blank when ready to remit in case you have not already paid your dues for 1918–19. I am enclosing another blank, hoping you will use it in securing one new active member for National Education Association.

A National Program for Education, National Education Association Commission Series Number One, a pamphlet of 28 pages, will be used in many reading circle courses and as a basis of work for teachers' meetings. The pamphlets are 5 cents each, or $4.50 a hundred. Other numbers of the Commission Series will follow in leaflet form. Any member may have on request a copy of the Declaration of Principles of the Pittsburgh meeting in special pamphlet form containing also a short statement of the work of the Commission.

I hope you are having a pleasant vacation. I hope you are laying up a stock of health, strength and inspiration to meet the heavy demands which will again be made on you by war conditions and war needs. Let the schools, if possible, render to the government even greater help during the coming year, in doing the home work necessary for winning the war, than was rendered by them during the past year.

EDUCATIONAL NOTES AND NEWS

EDWIN A. ALDERMAN, president of the University of Virginia, Charles R. Van Hise, president of the University of Wisconsin, and members of a party of educators and editors, will leave soon for England and France as the guests of the British government on invitations extended through the ministry of information.

DEAN WILLIAM F. RUSSELL, of the college of education of the University of Iowa, is in Russia, having been appointed by President Wilson as educational adviser.

PROFESSOR WENDELL T. BUSH has been appointed acting head of the department of philosophy, Columbia University, during the absence from the university next year of Professor John Dewey.

DR. WALTER O. MONROE has been appointed director of cooperative research in the school of education of the University of Indiana.

WALTER L. HARRIS, professor of education at Huron College, Huron, South Dakota, is working for the Bureau of Aircraft Production in Washington. His successor at Huron is Dr. H. G. Lawrence, formerly of Earlham College, Richmond, Indiana.

IN Portland, Ore., Superintendent Alderman has been made superintendent of war work and Mr. Grant, assistant superintendent, has been made acting superintendent.

IVER OPSTADT, superintendent of the New Providence, Ia., schools, has been chosen as the

new principal of the University of Iowa high school. Carl G. F. Franzen, the former principal, is now in the service.

SUPERINTENDENT JOE S. WRAY, Gastonia, N. C., has been granted a year's leave of absence on full pay in order that he may go to France in Y. M. C. A. war work.

REUBEN POST HALLECK, of Louisville, Ky., will address the Wisconsin Teachers Association, which meets at Warsaw on October 11 and 12, under the presidency of M. H. Jackson, of the Grand Rapids Training School.

IN honor of Miss Jane Ralston, Miss Anna Deens and William Falconer, who inaugurated Arbor Day in the Pittsburgh High School twenty-five years ago, the first-year class of the Fifth Avenue High School has planted three elm trees in Schenley Park.

THE board of governors and visitors of St. John's College, Annapolis, Md., has decided to drop from the faculty Dr. Adolf Schumacher, a native of Germany, who for a number of years was head of the department of modern languages at the institution. This action was taken it was said, because Dr. Schumacher was unable to satisfy the members of the board as to his naturalization.

ARLOS BATES, professor of English literature in the Massachusetts Institute of Technology since 1893, died on August 25 at his home in Boston, aged sixty-eight years.

THE *American School* notes that in Wisconsin M. T. Rodda, principal of the high school at Monticello, has entered the military service. Superintendent E. W. Shaw, of Peshtigo, accepts a position as representative of the Central Life Insurance Company. Principal H. C. Cooley, of the high school at Hillsboro, becomes traveling salesman for the Melgard Monument Works, of Sparta. Superintendent H. A. Melcher, of Delavan, has been given leave of absence to enter Army Y. M. C. A. work in France. County Superintendent J. P. Ballantyne has been granted similar leave. J. M. Chapman, of the Kewaunee High School, has entered the army as gas engine expert. A. G. Western, of the same school, has entered the same service. J. R. Thomas, principal of the high school at Melrose, has entered the military service. County Superintendent L. A. Gordon, of Portage County, is a non-commissioned officer in the light artillery. Principal H. O. Swetlik, of one of the grammar schools of Wausau, goes to Camp Grant as a soldier. Principal R. E. Balliette, of Oregon, enters the naval reserve corps.

UNDER date of July 18, 1918, the President issued the following order affecting the restoration to the civil service of those who have been honorably discharged after military service:

> A person leaving the classified civil service to engage in the military or naval service of the government during the present war with Germany and who has been honorably discharged may be reinstated in the civil service at any time within five years after his discharge, provided that at the time of reinstatement he has the required fitness to perform the duties of the position to which reinstatement is sought.

A SERIES of lectures illustrated with slides on the various war activities of the United States up to this time is being prepared by George F. Zook, professor of modern European history, Pennsylvania State College. The cantonments, airplanes, the Navy, shipbuilding, the trenches and many other features of the war are described in an interesting and instructive way. Each lecture is accompanied by from 45 to 65 slides, which are being sold at the nominal price of 15 cents each. The lectures and slides will be available for use about October 1. Further information can be obtained from the Division of Civic and Educational Publications, Committee on Public Information, Washington, D. C.

THE United States school gardens are now far enough along to enable an estimate to be made of the children's contribution to the food supply. One million five hundred thousand boys and girls are enrolled in the garden army, the Department of the Interior announced. They are cultivating more than 1,200,000 war gardens—the discrepancy between this number and the total of the wearers of the U. S. S. G. insignia being the aggregate of gardens that have failed from various causes. The

crop reports indicate that the average patch cultivated by the youngsters is a little over one fifteenth of an acre. The products average approximately $500 an acre. In other words, the school children of America will have this year contributed not less than $50,000,000 worth of food products toward winning the war. Because this food is consumed at home or marketed in the immediate vicinity of where it is grown it is calculated that the children have given Railway Director McAdoo the equivalent of 50,000 freight cars for the transportation of coal and other war necessities.

CONCENTRATION of all ground school training of Army aviators at four universities has been determined upon. The schools at Princeton University and at the universities of California, Illinois and Texas are to be retained. Those at Cornell and Ohio State universities and at Massachusetts Institute of Technology will be abandoned. The facilities at the three last named institutions are more urgently needed for other work. Extensions on a large scale will be made at the four ground schools retained.

IN order to utilize cargo space to the best advantage there has been opened at Madison, Wis., a school to instruct officers and enlisted men in boxing and crating. Instructions will be given to men from all departments that make overseas shipments. The instructors detailed for the various lectures are the experts in woods and woodworking now engaged in research work at the Forest Products Laboratory. The classrooms are donated by the University of Wisconsin and there is in addition a practical box-making factory and testing machinery for scientific and practical demonstrations. The men detailed for instruction take a three-weeks' course at the university and one weeks' practical work and demonstration in the box factories of two corporations. At the end of four weeks, they will return to their respective corps and will be used in boxing and crating inspection work by the various branches. The course includes instructions on the structure of wood, how to identify it and determine wood strength, factors affecting the strength of wood and shop exercises in making boxes and crates.

THE University of West Virginia has contributed the services of the following members of the university faculty to various branches of the national service: From the college of law, Professor J. R. Trotter, who is actively engaged with the food administration, and Associate Professor Thomas Porter Hardman, who is already on his way to Europe to do Red Cross work; from the college of arts and sciences, Professor A. L. Darby, who has sailed for Italy to act as an interpreter for the Y. M. C. A.; Instructor Byron Joliffe, who is in the Division of Science and Research at Washington, D. C.; Professor B. W. King, who is located at the government shipyards at Quincy, Mass.; Associate Professor Bristol, who is connected with the War Relief Association doing work for families left destitute by the draft. From the college of engineering, Assistant Professor W. Armstrong Price, who is located at one of the Virginia camps, doing map work in the heavy artillery, and Instructor George M. Osburn, who is doing surveying work at the Kelly aviation field in Texas. From the college of agriculture, Professor E. W. Sheets, who is connected with the United States Department of Agriculture in the division of animal industry at Washington, D. C.; Assistant Professor A. B. Berg, who is in the chemical and bacteriological service; Chemist C. F. Wells, who is in the gas section of the chemical bureau; Instructors W. R. Legg and R. H. Patch, both of whom have already gone through the officers' training camps, received commissions and are now in France; Assistant Professor C. F. Sarle, who is in the photographic division of the aviation service, and Instructor H. R. Cokely, who has been relieved at the university to do emergency war work out of the state; from the school of music, Professor C. F. Butterfield, who is now in France doing Y. M. C. A. work.

THE Chief of Engineers, General William M. Black, announces that the Engineering Officers' Training Camp, which was opened about August 1, has been situated at Camp

Humphreys, 17 miles south of Washington, on a plateau overlooking the Potomac River. Two thousand candidates for commissions as captains and first lieutenants will be trained under the same facilities provided for the 17,000 engineer replacement troops now there preparing for over-sea service. These facilities include the ordinary military arrangements, and in addition some 15 special schools to instruct men on such operations as mining, quarrying, gas and flame defense, barbed-wire fortification, water supply and railroad communication. The candidates for commission will become familiar with the work of all these schools and conclude their training with a course in sapper work, in order that they may be fitted to command sapper troops if necessary. Many of the candidates will come from civil life, a campaign being under way to interest men of technical training and experience. Many applications for entrance to the training camp have been received. To examine these candidates, General Black has designated a traveling board, which will visit several of the larger cities and determine the physical and mental fitness of the applicants. This board will be headed by Major E. H. Williams, who will advise the candidates as to the dates on which they should appear in the cities to be visited for examination. Candidates for first lieutenantcies should be between 32 and 36 years old, and those for captaincies between 36 and 42. Traveling expenses to the camp will be allowed successful candidates.

THE War Department has established five central officers' training camps, at which civilians and enlisted men will be trained for commissions in the Officers' Reserve Corps. Infantry training camps are located at Camp Lee, Petersburg, Va.; Camp Gordon, Atlanta, Ga.; and Camp Pike, Little Rock, Ark.; field artillery at Camp Taylor, Louisville, Ky., and machine gun at Camp Hancock, Augusta, Ga. These training schools will be run continuously, a new class being admitted monthly. The course of training will be four months at the infantry and machine-gun schools and three months at the field artillery school. The schools are open to qualified enlisted men in all branches of the service except Coast Artillery, Signal Corps, and labor units. The number of civilians admitted will be limited. To be eligible for admission candidates must be between twenty years and eight months and forty years; citizens of the United States, and not born in any of the countries with which the United States is at war or allies of such countries. Enlisted men must have the moral, educational, and physical qualifications required of an officer. Civilians must be graduates of a high school or have pursued an equivalent course of instruction, be of good moral character, and have the required physical qualifications. In addition to the above qualifications, candidates for the Field Artillery must possess a thorough understanding and working knowledge of arithmetic, algebra to include quadratic equations, and plane geometry. Trained civil, mechanical electrical, mining and architectural engineers are desired. Civilian applicants will be certified by the Army officer on duty as professor of military science and tactics at the educational institution nearest the residence of the applicant.

RETURNING blinded soldiers, sailors and marines are being received now for vocational instruction and rehabilitation at Hospital Training School, General Hospital No. 7, the former home of Mrs. T. Harrison Garrett, at Baltimore, Md. The hospital is outfitted to accommodate 250 men and has large recreation fields and an extensive acreage in gardens. Colonel James Bordley, of the Surgeon-General's Office in charge of the reeducation of the blind, has announced the appointment of O. H. Burritt, of the Pennsylvania Institute for the Instruction of the Blind, as the educational director of this Army hospital training school, with Miss Jenny A. Turner, formerly designer for the Massachusetts Commission for the Blind, as a reconstruction aide. Miss Turner has been working with the returned wounded soldiers at the Walter Reed Hospital, Washington. The blinded soldiers from over-

seas will be discharged from the hospital after they have been taught a practical self-supporting trade, have been put in good physical condition and taught to read standard printing in raised type. The men will be sent to their own home communities and placed in the trades for which they have been trained. Red Cross workers will watch over their welfare. Cooperating with the Army Medical Department, the Red Cross Institute for the Blind is now making a national survey of industries open to blinded soldiers. Instructions will be made to conform with preparations for these industries. The Federal Board for Vocational Education is arranging a plan for the economic and social supervision of all wounded and maimed soldiers.

From a letter of recent date from Professor Philip B. Kennedy, of New York University, now on leave of absence as American commercial attaché in London, to Professor Major B. Foster, secretary of New York University School of Commerce, something of the havoc war has played upon the enrollment in colleges in Europe may be guaged by the fact that Cambridge has now but ten per cent of the number of students registered previous to the war. An extract from the letter reads: "Whereas in pre-war times there were 3,000 residents students at Cambridge, there are now only about 350 all told. A very large proportion of the teaching staff has also been engaged in some form or other in war work. One of the most interesting experiences of our visit was a number of informal chats we had with faculty members about educational problems and university customs. It was very interesting to have some insight into the educational system of an old university like Cambridge." Professor Kennedy had been asked to give some lectures on economic and social conditions in the United States, during the first two weeks in August, at the summer session of Cambridge. A series of lectures on American subjects, which were to be opened by Ambassador Page, were given by American professors during the Cambridge summer school sessions, and Professor Kennedy's lecture was a part of the series.

DISCUSSION AND CORRESPONDENCE

COLLEGE COURSES AND THE TEACHER SUPPLY UNDER WAR CONDITIONS

In the daily press, one sees frequent references to the utilization by the military activities of the government, of the facilities of this or that state institution for the intensive training of the men selected by the draft for special work in the army. At rarer intervals, the news items have mentioned special exercises in connection with the unfurling of the "service flag" for this or that institution. Behind the scenes the executives of educational institutions have been trying to maintain efficient instruction in class room and laboratory in spite of losses of instructors who have joined the colors and the cramping of space through the presence of the men in special training.

Some readjustment appears to be necessary in the internal mechanism of some of the institutions so affected if a serious handicap is not to be placed upon their regular work.

The loss of instructors may in a measure be compensated for by combination of courses. Since the majority of the teachers who have been transferred to national service were of the draft age, it is safe to assume that they had charge, in the main, of the first- and second-year courses in their respective departments of instructions. The more advanced courses are usually under the direct care of the older men on the staff, and the head professors.

If courses in the biological sciences, which under previous conditions were given separately as introductory to the special courses, say of forestry, agronomy, horticulture and plant pathology, were to be revised so that a single freshman course could serve as introductory to all, three instructors, absent in the service, would not need replacement, one new man being able with the older members of the staff to handle the work, especially with the smaller classes incident upon the war conditions. In order to make such a consolidation, there would need be a spirit of close coordination between the several departments handling specialized botany. But the training in botan-

ical science need not be any the less accurate or thorough because emphasis is placed upon the acquaintance with the families of plants of importance in agronomy and horticulture. Quite as good examples of morphological structures or physiological processes can be found among crop plants and weeds as in greenhouse exotics.

The field crops represent the botanical families of Gramineæ (corn, sorghum and small grains), Malvaceæ (cotton, okra), Leguminosæ (cowpeas, velvet beans, etc.) and Convolvulaceæ (sweet potato); while the garden plants add Rosaceæ (most bush and tree fruits), Alliaceæ (onion, etc.), Cucurbitaceæ (melons), Cruciferæ (mustard, cabbage, turnips) and Solanaceæ (tomato, potato). Surely a working acquaintance with these nine families of economic plants would give variety enough, especially if the weed forms in the several families are included in the study, to serve as introduction to the more special courses. In addition to the above, the timber trees, pine and oak; and the great weed aggregation (Compositæ) should be included. This offers a study of twelve plant families, sufficiently different to cover the vegetation types of almost any section, and yet sufficiently harmonious to bring out structures, habits, life processes, distribution, utilization, or other details desired by the individual instructor, but offering the possible training in botanical science needed for the later work. A course in botany, freshman year, based upon the proper handling of such a group of plant families would be a distinct war-time service. It would not only relieve the institution of the necessity of replacing every man lost from the staff, but by combining several introductory courses into one foundation course in common for several special ones, would allow for more thorough or specialized treatment in the later work.

Similarly, in zoology, there is no evident need of the course in biology being so organized that the apparent worth of an experiment or exercise is based upon the taxonomic rarity or peculiarity of the specimens. The advanced or special work in animal husbandry, with its subdivisions, and in veterinary science, and that in technical zoology, could be developed upon a freshman course founded upon a study chiefly of domestic animals, with brief consideration of reptiles, fishes and selected lower forms. There is enough complexity in the skeleton of a calf or a dog to permit of discussions descriptive of skeletal development, with only enough attention to the lower forms to make the references intelligible to the class. There is enough physiology within the differences in breeds of hogs and cattle to give the instructor ample opportunity to develop all he can tell of such life processes.

Some years ago, when the elective system of instruction in college and university was much under discussion, President Eliot of Harvard University took the stand in favor of free-election by the student. He maintained the general thesis that a student will acquire more educationally from those subjects in which he feels a personal interest than from those toward which he is antagonistic. This idea was not widely accepted in its broad application, but the opportunity has been given to elect approximately one half of the required work, in most institutions. The basis of election is usually interest already felt in the subject, or prospect of application in later life of the training in prospect through the selected subject. It seems quite possible that the present undergraduate work in college or university could be revised upon this basis and that without lowering at all the quality of work done, add a considerable degree of interest, especially in the earlier part of the work; inspire a higher degree of respect for the subject when offered as a fixed requirement; and secure a greater return in effective results upon the investment in plant, equipment, time and teachers involved by substituting plant and animal forms, which in their usefulness as sources of food material and convenient power, or destructiveness as weeds or predatory pests, is already known. Why and how the plant or animal in hand falls into one or the other of these two categories is quite as capable of scientific discussion as the basis of taxonomic

classifications, and the information and observational training secured will be on the average remembered much longer, and used more frequently than the technical phases, whose proper place is in the later part of the different special courses.

Similar consolidations, especially of laboratory space and equipment, can in many cases be found possible in the introductory work in chemistry and bacteriology.

In some institutions, to judge from the numerous subdivisions of subjects as displayed in their catalogues, there seems to be a feeling that in multiplicity lies strength. It is a puzzle to see the necessity for cataloged courses in "weed botany" and "forest botany" separately set out as coordinate with "morphology of algæ," "plant pathology" or "taxonomy of spermaphytes." Weeds are only hardy plants growing under the same physiological conditions as others, but inheriting hardiness rather than beauty or economc usefulness. Weeds of field crops can properly be studied in connection with the associated crops, and garden pests with the fruits or vegetables whose cultivation may be made more laborious. There seems to be no inherent reason for separating the crop pest plants into a separate study unit. Similarly, before the work is sufficiently advanced for technical separation, the bacteriology commonly included under the label "general," could better be given at the same time to those who later will specialize in dairy, veterinary work or plant pathology or soil biology, than separately to these groups.

Not only would there be a material saving in apparatus and laboratory space, since the duplication or worse would be avoided in these particulars, but the one staff of instructors would give the students a glimpse at least into the bacteriological fields outside the one of his personal choice. It is needless to explain the benefits to the students of such a broader viewpoint.

A single laboratory for beginners, supplemented by special laboratories for advanced work, all under one group of instructors would be able to give instructions of higher average quality at lower cost to the institution than if several different departments, whose work may include certain phases of bacteriology, were to maintain separate laboratories, equipment and instructors for their limited fields. In exact work in breeding and heredity certain applications are made of calculus and similar branches of mathematics yet no one seems to have suggested the addition of a mathematician to the staff engaged in the study of eugenics. Some other duplications seem equally unnecessary.

Chemistry is another subject in which it would seem that consolidation might be possible. In many, probably the majority of the collegiate institutions of the country, the instruction in chemistry is given to all the undergraduates in the laboratories and lecture rooms of the department of chemistry. For the same principles of valence, replacement ratios, preciptation, selective solution or destructive distillation hold in the chemical operations involved, whether directed toward the qualitative analysis of a liquid mixture or a quantitative analysis of feeds or fertilizers. The difficulties encountered in the advanced work are inherent in the complexity of the substances handled, not in any new method of behavior of chemical reactions. All of the undergraduate work in chemistry could easily be done with the laboratory equipment of the department of chemistry, separate rooms being designated of course for different phases of the work, but only in the case of research in graduate departments establishing separate private laboratories in geology, soils, feeds or fertilizer work. Even in such cases the expense of duplication in apparatus and in laboratory space would be much greater in most cases than if the general equipment of the chemical department were augmented by the few special pieces needed, most of the apparatus being drawn from the general stock room of the department. The special requirements in the way of plumbing, ventilation, etc., in chemical laboratories make it highly desirable that there be as large a number to use the accommodations provided as possible without mutual interference. Extending the

existing hood flues, or plumbing, to an adjacent room to accommodate a research group of students would be much less expensive than equipping completely a room in a separate building. The students moreover under such conditions have the benefit of the library of the department with the least loss of time in use, and the opportunity of discussion with other students or the instructors in the department of any phase of their work just when it comes before them—not at some other time when some important detail may have slipped from memory.

The duplications mentioned above are to be noted in a number of catalogs from institutions in widely separated sections of the country. Other instances of similar overlap between departments will probably come to mind with almost any one who has had occasion to observe the work of several institutions doing similar work.

It would be a tedious undertaking to tabulate the overlap and to estimate the loss of efficiency and increase in cost along the lines above mentioned, for there are hardly any two catalogues in the country which are comparable by courses or by departments in the sense that trade catalogues may be compared. It seems sometimes as though the student had the courses multiplied on him for the benefit of the instructors rather than to aid him in acquiring a college training. Departmental ambition to get a chance at every freshman should be strictly subordinated to the purpose of aiding the student to make the best possible use of his first year in college. Make his introductory courses of such a character that he can go forward into advanced stages without repeating essentially similar steps. No such duplication occurs in the mathematical group of subjects, the formulas and processes acquired in the freshman year being utilized by application and elaboration in the later specialized subjects. While there are marked differences, evident to any one between mathematics and other subjects in a college curriculum, there is no evident reason for not using a common introductory course upon which to build the later specialized studies in biology, chemistry, history or other topics commonly carried progressively through several years of instructions.

A proper readjustment upon these lines may be expected to compensate in part at least for losses in the number of instructors, due to war activities, to reduce maintenance expenses by consolidation of laboratory and class room space and of apparatus to benefit the student by throwing him into contact with larger numbers interested in similar problems and to improve the instruction acquired by him by showing interrelations and common origins of diverse specialties.

FREDERICK H. BLODGETT
EXTENSION SERVICE,
A. AND M. COLLEGE OF TEXAS,
COLLEGE STATION, TEXAS

THE EDUCATION OF CHILDREN LIVING ON BARGES

How the children of New York Harbor barge captains live on such craft and how these children receive their education is discussed in an article entitled "New York Harbor Employees," in the July *Monthly Labor Review* published by the U. S. Bureau of Labor Statistics.

A number of illustrations showing the interior of some of the cabins of the barges accompany the article.

On page 18 of this article, we are informed

> Some of the companies endeavor to place men with families on the boats with the larger number of rooms, but even on the best equipped boats it is to be doubted whether children have that opportunity for normal development which may be reasonably expected. Particularly is this true in the matter of education. . . .
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> In view of the frequent and irregular shifting of these boats, the question naturally arises as to how the children of families living on the boats may be educated. Obviously, three ways are possible. The children may be taught by the parents; they may live ashore after they reach school age; or they may be sent to school from the boat as opportunity permits. As to the first of these ways, it may be said that the parents are often of limited education and in some cases illiterate. Even if the parents are able to teach the fundamentals, the environment of the boat is wholly unsuited to

the proper development of children. For the children to live ashore means either a shore home for the family, that the children live with relatives, or that they be boarded. But obliging relatives are not always available and either of the other two suggested ways means an additional expense probably beyond the means of the captains of these boats. There remains the other alternative, if children are to be educated, of sending them to school from the boat. Where this is done the children go to school from wherever the boat happens to be. When school is out for the day the children call up the company office in order to inquire the location of the boat. They then hasten to the designated place. In the meantime, however, the barge may be shifted and they must go to another point. Moreover, the location of the barge may necessitate crossing railroad tracks or a number of other boats, or it may be even more inaccessible, as on the offpier side of a steamer. Conditions are particularly bad in this respect at the coal ports. At one of the new coal ports at Staten Island a narrow walk two planks wide must be traversed for a distance of about 300 feet in order to get to the pier. When, however, a barge is lying at a pier other than a coal pier, the barge can be reached in comparative safety. Even going to school in this way means an additional expense for street-car fare unless the school is within walking distance.

On one of the boats visited there were four children. One, a girl was not old enough to attend school. Two boys, eight and nine, had never been to school. The other, a boy of ten, had been to school for a time, boarding at the home of a former foreman of the captain. The foreman was now asking $20 a month for the boy's board, which the father did not feel able to pay. The boat was a tidewater coal boat which made long and irregular trips and it would be impossible for the children to attend school from the boat with any degree of regularity.

On another barge described previously, having four children aged six, nine, thirteen and seventeen, none was attending school in April, the time of the visit to the barge, though the boys had "attended some during the winter."

Where the family lives ashore, the wife frequently secures work as a janitress or domestic in order to help meet expenses and keep the children in school.

In justice to the captains, it should be said that most of them with children seemed anxious to send the children to school.

Moreover, the number of children not attending school is probably small. However, the fact that no effective efforts have been made to remedy these conditions which exist in the harbor of the city which receives the immigrant seems deplorable. The interiors of the cabins abroad of some of these boats are described in the *Review* article. The description of these cabins and the apparent indifference of the boat owners to the schooling of their captains' children force the reader to conclude that the pre-war indifference of employers toward the living conditions of their employees and their families still prevails among the boat owners of New York Harbor.

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QUOTATIONS

VENTILATION AND SCHOOL HYGIENE

THE engineer of the Chicago Commission on Ventilation, W. J. Mauer,[1] has remarked that the ventilating engineer stands in ill repute to-day in the eyes of many, not because of lack of knowledge or skill on his part, but because of lack of uniformity of opinion and the need of standards of good air conditions and installation methods. Ventilation is a definite problem which can not be solved by the haphazard method of opening a window here and there. When one stops to remember that mankind is more immediately dependent on air than or either food or water, it seems surprising indeed that so little serious attention and scientific study have been devoted to the air we breathe, in comparison with diet and drinking supplies.

Motion, coolness, a certain degree of humidity, freshness—each of these factors has at some time been emphasized in relation to proper ventilation. The fear of drafts, at least of gentle drafts such as belong to ventilation schemes, is decreasing. The suspicion of subtle unidentified volatile "animal" poisons in assembly halls has been dispelled by the demonstration of their nonexistence. The

[1] Mauer, W. J., "Ventilation of Army Barracks," *Am. Jour. Pub. Health*, 1918, VIII., 112.

propaganda for fresh air in public places has, however, found a topic for debate in respect to the methods of ventilation to be employed. Speaking specifically, the uncertainty concerns the comparative value of the open air and the mechanical type of ventilation. To cite an illustrative case we may ask, Shall our school-rooms be ventilated by the system of fans or by open windows?

This is a timely question. The summer vacations are periods for repairs and alterations in school buildings. The period for essential changes that conduce to child health are at hand. Working in cooperation with the New York State Commission on Ventilation, whose investigations have been recorded from time to time in this journal, the Bureau of Child Hygiene of the New York City Department of Health has contributed some striking evidence on the subject. In a comparison involving 5,533 pupils in many classrooms, the relation of the temperature and type of ventilation of the schoolrooms to absence due to respiratory disease was investigated. It was found that children in classrooms with closed windows and ventilated by mechanical methods, such as the plenum fan system, were more subject to such ailments severe enough to keep them from school attendance than were children who were in classrooms kept at the same or lower temperature and ventilated wholly by open windows. Furthermore, in the closed window, mechanically ventilated type of room, the rate of respiratory diseases occurring among pupils in actual attendance, that is, not ill enough to be kept at home, was 98 per cent. higher than in naturally ventilated schoolrooms at the same temperature (about 68° F.), and about 70 per cent. higher than in the open window type of classroom kept at about 50. There was no difference between the sexes. Contrary to popular notions, the relative humidity was in no case a causative factor in the occurrence of respiratory illness among school children. These observations on the hygiene of ventilation speak for themselves. Incidentally they give evidence of the value of one of the bureaus in the municipal health department organization of New York City which has recently become the target for something savoring of political interference.—*Journal of the American Medical Association.*

BOOKS AND LITERATURE

Principles of Secondary Education. By ALEXANDER INGLIS. Boston, Houghton Mifflin Company. 1918. Pp. 741. $2.75.

The problem of secondary education is admittedly one of the most perplexing of the many that beset us to-day in the field of education. Not only is it now in a transition stage but the uncertainties are likely to be multiplied after the war by the increasing demands of international competition, even though friendly, and by the broader outloook that will result from wider international intercourse and interests. It is doubtful whether the problem can be profitably considered at the present time without reference to impending changes both at home and abroad. The kind of secondary education that will be required will depend very largely on the type of citizenship our schools will be called upon to develop and by the kind of social, economic and political conditions that may have to be met. It will be readily seen that any consideration of the problem must be tentative, but that those upon whom will fall the task of suggesting plans for reconstruction will find considerable value in a comprehensive survey of the contemporary theory and practise of secondary education.

Such a survey Professor Inglis offers in his present book, in which is assembled a great amount of material, well-analyzed, together with an extensive bibliography on every phase of secondary education. Indeed, only a discussion of much the most difficult part of the problem, the supply and training of teachers, is lacking to make the work exhaustive. The thoroughness with which every topic is canvassed should commend the book to teachers who desire to acquaint their students with the vastness of the problem. A preliminary account of the physical and mental traits of secondary school pupils, their individual differences and classification summarizes many

of the better known studies on these subjects, and together with a consideration of the institution and its purpose serves as a foundation for the elaboration of the principles. A chapter on the development of secondary education in America takes the subject as far as the beginning of the public high school movement in the United States. This account is, however, very brief and is open to the criticism that it is almost wholly confined to Massachusetts and New England, where the history of secondary education was not typical of its development in the rest of the country. In the chapter on Secondary Education in other Countries Professor Inglis deals with all types of educational facilities for adolescents, general and vocational, in England, France and Germany. It may be questioned, however, whether this comprehensiveness is justifiable. One of the chief causes of the perplexities in which secondary education is involved in this country is the uncertainty as to its meaning and scope. To point out that foreign countries provide vocational and technical courses for boys and girls between the ages of twelve and eighteen will not help us to get a clearer conception of secondary education. The fact is that the foreign countries concerned have well-defined notions of what constitutes secondary education and there are specific reasons that we ought to take the trouble to understand why this type of education is separated and will continue to be separated from vocational and technical education. The attempt in this country to include in the one institution every type of educational activity for adolescent pupils accounts for the failure to attain thoroughness in any one of them. Vocational and technical training differs in every way from general training and the changes that have resulted from the speeding up demanded in the former by the war will undoubtedly upset the preconceptions of those who think that the secondary school can be run on the same lines as a department store, offering or obtaining for the customer anything he may want. There may be little to learn from the actual organization of secondary schools in foreign countries, but a study of the purposes which they subserve would still be of considerable value here. It is significant, for example, that the French secondary schools are almost immune from attack in these days when all institutions are being attacked, and that those interested in secondary education in England in redefining the conception of the humanities in terms more suitable to modern needs than the old Renaissance definition are not advocating the transformation of secondary schools into vocational training schools. It is not a sufficient answer to this objection that the European secondary school system cater to class interests, while the American high school serves a democracy. In the English secondary schools it is the pupil who gains admission from the elementary school by means of a scholarship who according to the statistics remains longer in school. It may be pointed out also that, while the enrollment in the American high school which is ready to offer anything that may be demanded from laundering to Greek is falling off, the English secondary school with its traditional, stereotyped cultural course is showing increased attendance as a result of war prosperity. Further, those labor leaders in England who are demanding an extension of educational opportunities for the working classes both in secondary and continuation schools are wholeheartedly opposed to vocational education in those schools and are demanding a liberal education for all conceived in accordance with the needs of a democracy.

This incoherence of American secondary education is nowhere better illustrated than in Chapter X. in which Professor Inglis defines the social principles determining secondary education. It would be possible to substitute the term "elementary education" throughout the chapter wherever "secondary education" occurs, and it would be almost equally easy to define the aims and functions of elementary education in the terms that Professor Inglis lays down for secondary education—social-civic, economic-vocational, individualistic—avocational. The crux of the matter lies here, to define the aims over and above those of the elementary schools that justify society in

maintaining secondary schools and the individual in attending them. It has become the fashion to decry the use of the terms "culture" and "liberal education," and Professor Inglis states that he purposely avoids the terms "culture" and "cultural," "because of their ambiguity in modern educational thought." After Professor Dewey's comprehensive definitions of these terms there would hardly seem to be any need to shrink from their employment. The chief defect of the careful analysis made by Professor Inglis is the difficulty of stating at any one point what part of the subject or curriculum serves the social-civic, the economic-vocational, or the individualistic-avocational end. The same objection may be raised against the particularization and segmentation of the individual secondary school subjects to which the second half of the book is devoted. Criticism of these chapters may be left to the specialists in the respective fields, but it is at least open to question whether we are yet in a position to make the close analysis into direct and specific values and indirect and general values, particularly at a time when, as Professor Inglis shows in Chapter XI., the whole question of indirect values is in a state of uncertainty. The same difficulty attends any attempt to determine the "certain and contingent values" of which Professor Inglis speaks in another place.

The question fundamentally is whether in our haste to break with the past and to revise our standards of education in accordance with the so-called demands of the immediate present we are not in danger of setting up an educational lunch counter which may meet the wants of the moment but will fail to build up tissue. We are so intent on writing education down to the countinghouse, the farm and the workshop that we are apt to forget that the primary function of education in a democracy is to impart a knowledge and appreciation of the common foundations on which society has been built and rests to-day, that the community to whose needs adjustment is to be made must be interpreted at least as broadly, if not more broadly, than the confines of the nation. Any other kind of adjustment to the special parochial interests of a community will not only fail to secure the progress of democracy but will defeat its purposes and become as disintegrating as the so-called aristocratic culture of Europe. Undoubtedly the groping around that characterises secondary education to-day will serve a useful purpose in time. The extension of the high school by two years, which Professor Inglis advocates and for which his curricula in Chapter XX. are framed, presents an opportunity for the development of a school that should be more than the extension of an elementary school. In many of the criticisms that Professor Inglis passes on traditional subjects of the secondary school he apparently ignores the possibility of improvement that may result from such extension and from better teaching. Professor Inglis rightly postpones specialization until the close of the junior high school period, but it is the attempt to meet the economic-vocational aim in the senior high school that is likely to be fraught with serious trouble and to give rise to questions that can not be avoided merely by the statement that "the greater difficulty of attaining the economic-vocational aim is, however, no justification for its neglect in the secondary school." The whole problem of vocational training will assume an entirely new aspect after the war and the probability is that high schools whether here or abroad will prove to be the least well adapted to give this kind of work. That of course will not relieve the schools of the important task of laying the foundations for that sympathetic insight into modern industrial organization and economic problems that should be the possession of every educated citizen.

Whatever may be the requirements of method, in the framing of curricula we shall in this country be compelled by the changing status of the nation to develop a conception of secondary education that must transcend the boundaries of provincialism to which attempts to adapt the schools to the demands of agriculture, commerce, industry, the social activities of the moment, the activities

of life and the immediate environment appear to be leading. More than ever before the high school must become the college of the people and give them something over and above that which they *think* they need. In adopting the methods of the business world the professional educator is in danger of resigning his true function of leadership, which consists not only in anticipating and meeting public demands but in creating them. Viscount Bryce in summarizing the aims of secondary education for an English audience presents a succinct statement that may yet find acceptance in this country.

> In the stress and competition of our times, the future belongs to the nations that recognize the worth of knowledge and thought and best understand how to apply the accumulated experience of the past. In the long run it is knowledge and wisdom that rule the world, not knowledge only but knowledge applied with that width of view and sympathetic comprehension of men and of other nations which are the essence of statesmanship.[1]

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EDUCATIONAL RESEARCH AND STATISTICS

A STUDY OF THE MENTAL AND PHYSICAL CHARACTERISTICS OF THE CHINESE

In the years 1915–1917, Dr. J. W. Creighton, under the direction of the writer, made a study of the mental and physical characteristics of Chinese children (Cantonese). The subjects studied numbered approximately five hundred, and ranged in age from ten to eighteen. The physical measures include those of twenty-five Chinese women also.

While the number was not large enough, nor the tests sufficiently extensive, to enable us to write with confidence on the racial peculiarities of the Chinese, nevertheless, some facts appear fairly certain.

THE PHYSICAL MEASURES

Careful physical measures were made of height standing, height sitting, weight, lung capacity, strength of grip, muscular speed of the right and left hands, and the length and breadth of the head. The results of the physical measures are shown in Table I. In Table II. the physical measures of the Chinese are shown in terms of their percentages of the corresponding measures of American children.[1]

A study of Table II. shows several interesting facts. In general, Chinese boys and girls are physically inferior to American children of the same age. The height of Chinese boys is 98 per cent. of that of American boys, while the height of the Chinese girls is only 92 per cent. of that of American girls. The sitting height of Chinese boys is 99 per cent. of that of American boys, the corresponding per cent. for Chinese girls being 94. The Chinese, therefore, have slightly longer bodies and shorter legs, relatively, than Americans. The Chinese are more slender than Americans, the weight of the boys being only 86 per cent. of that of American boys, and the percentage for the girls is only 79.

The grip of the Chinese boys is 84 per cent. of that of American boys; the percentage for girls being only 72. In muscular speed, however, the Chinese boys excel American boys at every age studied, averaging 105 per cent. of the speed of American boys, the per cent. for girls being only 87.

The percentages for lung capacity are 80 and 73 for boys and girls, respectively. The vital index (lung capacity divided by weight) of Chinese boys is 89 per cent, that of American boys; the corresponding percentage for girls being 92.

Head measurements were also taken. The Chinese are a round headed people, their cephalic index averaging .83 for boys, and .82 for girls. The cephalic indices of American boys and girls is approximately .79.

If the Chinese girls of ages 16, 17 and 18,

[1] "Cambridge Essays on Education," p. xiv, 1917.

[1] The norms used for this comparison were those worked out by the writer and published in the *University of Missouri Extension Bulletin*, Vol. 17, No. 24, "A Manual for the Mental and Physical Examination of School Children," 1916.

TABLE I

The Physical Measures of Chinese

	Age	10	11	12	13	14	15	16	17	18	Adults
Number of Cases	Boys	14	23	57	62	55	40	19			
	Girls	11	12	16	32	24	34	41	35	25	25
Standing height	Boys	131.0	132.6	139.5	143.8	152.7	159.6	159.1			
	Girls	122.1	126.2	134.3	139.5	143.3	146.4	150.6	150.7	150.5	151.5
Sitting height	Boys	67.0	71.2	74.0	77.3	80.8	85.2	86.0			
	Girls	65.2	68.7	70.2	73.9	76.8	78.6	79.6	80.7	81.5	80.4
Weight *in kg.*	Boys	28.33	30.39	32.24	37.85	44.69	49.40	51.92			
	Girls	22.82	25.19	30.46	34.60	37.53	39.63	43.67	45.24	47.02	50.77
Grip, right, *kg.*	Boys	13.57	15.43	17.20	20.40	26.51	31.92	33.56			
	Girls	8.45	10.58	13.19	15.97	18.67	18.94	22.32	22.40	22.12	21.72
Grip, left, *kg.*	Boys	11.57	13.33	15.18	18.28	25.44	29.89	31.96			
	Girls	8.54	9.33	11.44	13.97	17.21	16.33	20.97	19.89	20.50	21.20
Speed, right, *taps per 30 sec.*	Boys	159	174	185	182	194	199	199			
	Girls	146	145	153	151	152	155	165	160	177	164
Speed, left	Boys	148	152	167	166	173	178	183			
	Girls	128	128	136	131	139	138	144	146	152	152
Lung capacity *in cc.*	Boys	1444	1464	1671	1989	2252	2517	2627			
	Girls	1165	1137	1358	1539	1669	1805	1902	1911	1946	2048
Vital index, *cc. per kg.*	Boys	51.19	48.53	52.41	52.54	50.42	50.95	50.57			
	Girls	50.98	45.24	45.24	44.79	44.49	46.11	43.91	42.70	41.56	40.67

TABLE II

	Age	10	11	12	13	14	15	16	17	18	Ad.	Av.
Standing height	Boys	97	94	97	95	98	97	97				96
	Girls	90	89	91	90	92	92	94	94	94	94	92
Sitting height	Boys	94	97	98	99	100	101	102				99
	Girls	92	93	91	92	94	94	95	96	98	93	94
Weight	Boys	92	88	86	90	95	89	89				90
	Girls	75	73	79	79	79	77	82	81	84	85	79
Grip, right hand	Boys	81	80	78	81	90	94	89				85
	Girls	59	65	69	70	76	69	81	82	79	75	73
Speed, right hand	Boys	105	106	110	104	110	106	105	100	101		105
	Girls	95	89	91	88	83	84	88	83	91	82	87
Lung capacity	Boys	83	76	78	85	83	79	78				80
	Girls	77	65	72	70	71	74	75	75	73	73	73
Vital index	Boys	90	86	90	93	86	88	88				89
	Girls	103	89	91	87	91	97	92	93	88	85	92
Average	Boys	92	90	91	92	96	94	94				93
	Girls	81	79	82	82	83	82	86	85	87	84	83

In Table II. the Chinese norms as shown in Table I. are expressed in terms of per cent. of the corresponding American norms. The standing height of boys age ten, for example, is 97 per cent. of the average height of American boys of the same age. The American norms used for comparison are those established by the writer. In the averages shown at the bottom of the table vital index is not included since it is derived from weight and lung capacity. The averages at the right enable us to compare the sexes with respect to the same characteristic, and also the same sex in different characteristics. The averages at the bottom of the table enable us to compare the physical development of boys and girls of the same age. At the right, the various ages are combined; at the bottom, the results of the various tests.

and the adult women measured, are typical, there is slight indication that Chinese girls pass through their adolescent growth somewhat faster than do American girls. The physical measures of the twenty-five Chinese women are only 82.7 per cent. that of American women, while their measures for ages 16, 17 and 18 are 85.7, 85.2, and 86.5, respectively.

To summarize: the Chinese boys and girls are not quite so tall, not nearly so heavy, nor so strong, as Americans of the same age. Chinese boys are faster than American boys; the Chinese girls not quite so fast as American girls. The amount of air space per pound in the case of Chinese boys is about 10 per cent. less than that of American boys, and that of girls about 8 per cent. less than that of American girls. The Chinese are broader headed than Americans, and are somewhat more nearly ambi-dextrous. Averaging the various tests for all the ages, we find that the Chinese boys come nearer to equalling American boys, by about 12 per cent., than the Chinese girls come to equalling American girls.

THE MENTAL MEASUREMENTS

In the mental measurements we were confronted at once by language difficulties. In some of our standard mental tests, efficiency is in part determined by speed of performance. This is true, for example, in the free association tests, and in the controlled association tests. We therefore undertook to determine speed of writing in Chinese characters as compared with speed in writing in our own language. Owing to the very great differences in the principles underlying the written characters of the two languages, our attempt at comparison was not wholly successful. The indications were that Chinese are considerably faster in writing than are Americans of the same age, as was to be expected from their great muscular speed in the tapping test, especially in the case of boys. But in spite of their greater speed in writing, they seemed to be very slow in the controlled association test. However, we do not have very much confidence in this comparison, owing to our inability to evaluate accurately their relative speed in writing, and therefore, omit from our tables of results the tests in which speed was an essential element.

The tests for which the results are given are the following: rote memory, logical memory, substitution, analogues, and the spot pattern test.

The object of the rote memory test is to determine the immediate memory span for short, unrelated words. This was determined separately for abstract and for concrete words.[2]

The purpose of the logical memory test is to determine the immediate memory efficiency for logical material, *i. e.*, ideas as related in connected discourse. A very simple story was used, "The Marble Statue." This story was found to be very suitable for the Chinese of all ages tested. It was carefully translated into their language by a competent native. In giving the test the story was read by a native Chinese to those being tested, who, after hearing it read, reproduced it in their own words. In grading the papers we determined merely the number of ideas corectly reproduced. The ideographic nature of the Chinese language made this grading a very easy matter.

The object of the substitution test is to determine quickness of learning. The test consisted of two parts; first, transcribing digits into arbitrary symbols; and second, transcribing arbitrary symbols into digits. Efficiency is determined by speed of performance, but since the Chinese children were familiar with the Arabic numerals, comparison with Americans in this test is legitimate.

The object of the analogue test is to determine efficiency in performances in which logical relationships are the important factor. As an illustration, the test ran as follows: "Wrist is to bracelet as finger is to ———" The subjects filled in the blank with a word which gave the same relation to finger that a bracelet has to a wrist. Several illustrations were given to the children before they proceeded with the test. Since they were already famil-

[2] The method for this test, as well as for logical memory and substitution, is to be found in the writer's "Examination of School Children."

TABLE III

	Age.....	11	12	13	14	15	16	17	18
Number of Chinese Tested.....	Boys	13	22	42	69	75	57	35	20
	Girls		12	22	20	18	22	18	8
Rote memory, concrete	Ch. B.	39.82	45.87	45.78	49.08	49.08	53.55	51.40	44.58
	Am. B.	38.50	39.20	40.60	40.52	42.02	45.60	46.50	47.50
	Ch. G.		44.10	45.59	43.88	44.79	41.46	46.45	40.68
	Am. G.	38.60	39.60	42.00	44.10	45.40	44.70	43.80	47.30
Rote memory, abstract	Ch. B.	38.09	44.25	44.28	46.97	45.14	48.08	49.31	44.00
	Am. B.	37.90	32.60	36.00	38.50	39.70	45.00	46.80	50.40
	Ch. G.		46.30	45.86	45.95	46.79	45.87	49.35	37.44
	Am. G.	33.90	34.90	38.40	42.90	45.10	45.50	42.50	52.60
Logical memory.....	Ch. B.	26.23	28.77	28.38	30.43	32.16	31.42	34.66	26.20
	Am. B.	32.81	35.01	36.71	35.70	36.08	34.86	34.80	36.80
	Ch. G.		37.00	37.27	34.70	35.83	35.27	35.00	30.50
	Am. G.	36.21	37.79	38.55	38.71	38.31	37.15	36.73	38.12
Substitution, digit-symbol.....	Ch. B.	17.12	17.95	20.36	21.68	22.28	23.89	25.96	20.18
	Am. B.	16.49	18.90	22.10	20.67	24.15	24.65	24.30	28.20
	Ch. G.		18.19	18.98	18.91	19.81	18.06	21.26	13.50
	Am. G.	18.60	22.00	23.30	25.90	26.51	27.60	28.10	31.20
Substitution, symbol-digit.....	Ch. B.	12.54	14.64	16.04	18.39	17.87	18.29	23.12	19.32
	Am. B.	16.84	18.79	20.40	22.40	24.90	25.90	26.50	26.90
	Ch. G.		19.73	21.53	20.88	22.85	19.88	23.96	21.21
	Am. G.	19.30	22.59	25.00	26.84	28.77	29.44	28.80	32.68
Analogues.....	Ch. B.	3.84	3.83	5.28	5.65	6.15	6.24	7.51	3.80
	Am. B.	11.90	16.53	15.96	13.30	15.71	15.45	19.86	18.24
	Ch. G.		2.66	6.03	4.20	3.92	3.97	4.67	1.70
	Am. G.	16.25	12.40	14.41	16.15	16.09	20.47	16.86	21.17
Spot pattern.....	Ch. B.	18.54	24.81	23.06	25.63	25.25	28.48	28.16	26.05
	Am. B.	20.11	21.34	22.99	31.83	38.72	29.02	34.16	85.69

In Table III. Ch.B. = Chinese boys; Ch.G. = Chinese girls; Am.B. = American boys; and Am.G. = American girls.

TABLE IV

Table IV. was constructed from Table III. in the same manner as Table II. was constructed from Table I. The numbers in the table represent the per cent. which Chinese mental efficiency is of American efficiency when the averages for the same ages and sexes are compared. In this table the results for the concrete and abstract rote memory tests are combined, and in the substitution test the digit-symbol and symbol-digit tests are combined. Ages 11 and 18 are omitted because of the small number of cases. The American norms used for comparison are those established by the writer for American urban children. The girls did not have the spot-pattern test, therefore the averages including all the tests, shown at the bottom of the table, are not strictly comparable. However, taking the figures as they stand, the boys average about 7 per cent. better than the girls.

	Age	12	13	14	15	16	17	Av.
Rote memory	Boys	125	118	122	116	112	109	117.0
	Girls	122	114	103	102	97	112	108.3
Logical memory	Boys	82.2	77.3	85.2	89.1	90.1	99.6	87.3
	Girls	97.9	96.7	89.6	93.5	94.9	95.3	94.7
Substitution	Boys	91.3	85.6	93.0	81.8	83.4	96.6	88.6
	Girls	85.2	83.8	75.4	77.2	66.5	79.5	77.9
Analogues	Boys	23.1	33.1	42.5	39.1	40.4	37.8	36.0
	Girls	21.5	41.8	26.0	24.3	19.4	27.7	26.8
Spot pattern	Boys	116.0	100.0	80.6	65.2	98.1	82.4	90.4
Average	Boys	87.5	82.8	84.7	78.2	86.0	85.1	84.0
	Girls	81.7	84.1	73.5	74.3	69.5	78.6	77.0

iar with the "rule of three," they readily comprehended the nature of the test. Twenty-five of these analogues were given in the test. Efficiency was determined by the number of analogues completed in a given unit of time. The error in the results of this test, due to difference of speed in writing is insignificant because the greater part of the time is used in working out the logical relationships involved, and not in writing the characters.

The spot pattern test measures ability to perceive spatial relationships, and to reproduce them from memory. The test was as follows: the subject was shown a large sheet of cross-section paper on which a pattern had been made by placing seven large dots at intersections of the cross lines. After seeing the pattern the subject attempted to reproduce it on similar cross-section paper. Efficiency was determined by finding how many times it was necessary to expose the copy before it was correctly reproduced by the subject.

The actual results of the tests, with the corresponding American norms, are shown in Table III. The percentage comparison with American norms is shown in Table IV.

A study of Table IV. shows that Chinese boys and girls are better in rote memory than are Americans. In logical memory the Chinese girls are almost as good as American girls of the same age, while Chinese boys lack 13.5 per cent. of being as efficient as American boys of corresponding age. In the substitution test, which measures quickness of learning, the Chinese are considerably slower than Americans. In the analogue test, which measures efficiency in working out logical relationships, the Chinese are especially poor. Even if ample allowance were made for differences due to time consumed in making the Chinese characters, the efficiency of the Chinese would not be anywhere near that of Americans. The test was especially difficult for them. In the spot pattern test there were no language difficulties whatever, and the Chinese were on an entirely equal footing with Americans. The efficiency of the Chinese boys who took the test was 10.5 per cent. below that of Americans. Unfortunately we were unable to give this test to the girls. If the averages of the various tests are combined, the efficiency of the Chinese boys is found to be about 84 per cent. of that of Americans, while the efficiency of Chinese girls is only 77 per cent. of that of American girls.

The sex comparisons are very interesting. Studies of American school children have shown girls to be better developed mentally in nearly all characteristics than are boys of corresponding age. This is not true in the case of the Chinese. In all the tests given, including the two association tests not here reported, Chinese boys excel girls of the same age, except in the single case of logical memory. Generally speaking, the Chinese girl does not show up as well when compared in mentality with American girls of the same age, as does the Chinese boy when compared with the American boy of the same age. This is true, it will be remembered, in the case of physical development also.

If the American mental and physical sex norms be taken as the standard of comparison, the Chinese boys and girls stand to each other as 93:83 physically, and 84:77 mentally. These ratios are almost identical, the Chinese girls being 2.4 per cent. nearer the boys mentally than they are physically.

The Chinese studied live in a warm climate, on the border of the tropics. Physical measures of northern Chinese might show better physical development.

It is evident from Table IV. that the Chinese are particularly good in rote memory, relatively good in logical memory, and the boys fairly quick in learning (substitution). Both sexes are very poor in the logical relations test. In the spot pattern test the Chinese are on a complete equality with Americans so far as all conditions of the test are concerned, and on this test they come within 10 per cent. of the American averages.

How significant are these differences? In the writer's study[3] of the American negro a much larger racial difference was found, although the negroes studied lived in the same

[3] SCHOOL AND SOCIETY, 1915, p. 357; *Psych. Bul.* Vol. 13, 1916, p. 82.

cities with Americans, using our language, having similar schools and courses of study, and having the same general environment. The results show the mentality of Chinese boys to be 84 per cent. of the average for white boys. The corresponding per cent. for negro boys is only 64.6. The average for Chinese girls is 77 per cent. of the average for American girls. The corresponding per cent. for negro girls is only 67.8. It is interesting to note that while negro girls are nearer to white girls than negro boys are to white boys, the reverse is true in the case of the Chinese.

In a recent unpublished study of all the rural school children of a Missouri county, the mental development of rural children was found to be much farther below that of city children than the difference here found between Chinese and these same American city children. This means that the racial differences between the Chinese and Americans, as shown by the tests, is less than that between rural and urban American white children.

A consideration of all the factors involved leads the writer to the opinion that the Chinese studied would not have been much, if any, inferior to the Americans with whom they were compared, if they had been subjected all their lives to the same or similar influences. This is only an opinion, however, and much more extensive studies will be necessary for an exact comparison of Chinese native capacity with that of Americans.

W. H. PYLE

SOCIETIES AND MEETINGS

THE NATIONAL EDUCATION ASSOCIATION

The Emergency in Secondary Education: George D. Strayer, Chairman, N. E. A. Commission on the National Emergency in Education.

We are fortunate in the United States in the fact that we have a larger percentage of our population in secondary schools than is true of any other country. The war emergency has tended to reduce this enrollment. There is a popular notion that boys and girls can be of more use to their country in going to work than in staying in school. We are beginning to realize, however, that the most important contribution that a boy or girl can make to the welfare of the nation is to be found in securing the intellectual training which the school provides.

It has been said that this war is a war of engineers. It might as well be said that it is a war in which superior intelligence will, in the long run, bring victory. We need to keep every capable boy and girl in school through the secondary-school period and on through the university and professional school, if we are to win out after the world struggle which will persist even beyond the day of the declaration of peace.

The present emergency has made us conscious of certain alarming deficiencies in our scheme of secondary education. We know now that we have postponed too long the period of beginning the secondary-school studies. We, in common with the more highly civilized people of the world, should undertake the serious work of the secondary school at twelve rather than at fourteen years of age. At present American boys and girls of eighteen years of age are approximately two years behind their European contemporaries in intellectual training. We prided ourselves, and rightly, on the physical and mental alertness of our youth. But we may not be satisfied with our scheme of education until we have accomplished vastly more than we now do, in intellectual training during the secondary school period.

Intermediate schools are being established beginning with what is now the seventh year of the elementary school and providing opportunity for boys and girls of twelve and thirteen years of age to begin the subjects which are now found in the first year of the high school.

Differentiated courses of study in the intermediate schools should provide not only for those who are to go on through the high school and college, but as well for boys and girls who are to go into commerce, into industry, or who are to contribute through the development of special skill in trades.

A very much larger provision should be

made in the household arts including cooking, sewing, millinery, dressmaking, designing, household decoration, and management and the like for girls who will make their greatest contribution along these lines. In these schools there should be a definite attempt to discover special aptitudes and abilities in order that educational guidance may result in placing boys and girls in such courses as will permit them to develop their greatest possible efficiency.

But the problem of secondary education will not be solved by the introduction of the three-year intermediate school followed by the three-year high-school course. We must provide for the reorganization of our courses of study, even in the fields which seem best established. Without sacrificing the intellectual training which we hope to provide, there should be a revision of many of our subjects in such manner as to provide them some definite relationship to the everyday experience and work. Already a beginning has been made in mathematics, science and in certain of the other subjects. Nothing is lost in teaching the kind of mathematics which can be used in the shop, in the home, or in the explanation of everyday phenomena. The science which is related to our everyday life is quite as important as the science which in the lives of boys and girls is related only to laboratory experiments. The teaching of modern languages will be vastly more significant in intellectual training if we recognized the necessity for a kind of teaching in this field which would hold before the boys and girls a standard of achievement which can be satisfied only when they were able to speak and to write in the foreign tongue.

If the work of the secondary school is to be developed in relation to our modern needs we shall have to provide more adequate training for teachers. If the American people are wise they will make it possible for a man or a woman to find a career in teaching in our secondary schools comparable to that to be found in medicine, in law or in engineering. Surely it is of as great importance to the future of our country that men of broad training, of keen intelligence, of the highest ideals, be associated with our children during this most important period of their development, as it is that we provide adequate service in the other professions. We can never hope to secure this kind of a teaching corps unless we are willing to invest vastly greater sums in teachers' salaries. Our choicest men and young women may not be expected to engage in this highest type of national service without sufficient salaries to enable them even to have ordinary comforts or to lead the kind of life which makes for intellectual growth and development. The future of our American citizenship, the ideals of our leaders, are in very large degree dependent upon the action which the American people take in support of teachers in their schools.

If the present emergency is to be adequately met, education must be provided for boys and girls between twelve and eighteen years of age, the secondary school period. For those who can not attend the full time intermediate of high school, provision must be made between fourteen and sixteen years of age for attendance on half time. This would enable those employing children in this group to use two groups of children without interruption to the work in which they are engaged. Such a scheme would also provide not only for the further education of these children but as well for the development of better health, for the development of a sounder physical background for the work which they are to do in later years. From sixteen to eighteen, provision should be made for a minimum of eight hours of school in daylight for all of those not regularly enrolled on full time.

We may not hope to have our schools contribute largely to an understanding of American institutions or to the development of democratic ideals in our population except as we continue the period of compulsory education to eighteen years of age. Our present emergency will prove a blessing in disguise if it results in a recognition of the necessity for reform in secondary education and in a determination to extend the period of compulsory education.

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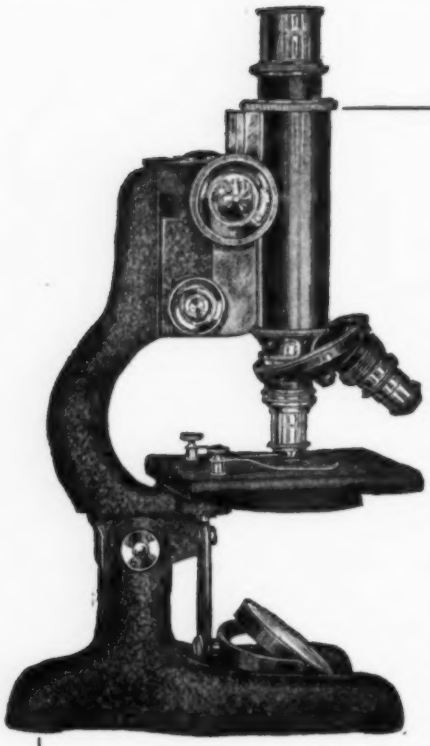

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